

b	61	VSATEPAPQRISLTLDGGSPPTSVPTTDYRGALGFDRFLOSSTAKSTCTYSDLNK	120	NUCLEAR LOCALIZATION SIGNAL (POTENTIAL).
b	151	LYCQIAKTCPIQKYSTPPPGTAKRAMPYKKAERHTDVYKRCPNHELGDFNEQSQAP	210	PHOSPHORYLATION (BY SIMILARITY).
b	121	LFCQLAKTCPIQIVYDHPPSPGAVYRALPIYKRLSDADEVYRCPHHOSTQPHI	179	
b	211	ASHLIRVEGNNLSQLQVYDPPGTYGRSVVYFPEPPQGTFETTLYNFCNCSSCVGGNNRRP	270	
b	180	RGHLYRVEGNRSEYMEGDNITLRLSIVLYPEPPQGSECTTVLYNFCNCSSCMGGNNRRP	239	
b	271	ILITLLEMRDQVGLGRSPERGRICACPDRDADEHYREGQALN-ESSAKNGASKRA	329	
b	240	ILITLLETQEGOLLGRRSFEVRVACACPRDRTEETNLKKOETTLETTKPAQGKRA	299	
b	330	FKQSPPPAVPAVGAGYKVRHR--GDEDTYLQYGRENFELINKLKESELMEVYQFLY	386	
b	300	MKEASLPPQBGASKTKTSSPAVSDDEIYLTQIRGKERYEMKKFENDSLESELVPADA	359	
b	387	DSYRQQ	392	
b	360	DKYRQK	365	
RESULT 2				
b	53-BRAE	STANDARD;	PRT;	373 AA.
c	P79734;	STANDARD;	PRT;	373 AA.
t	01-NOV-1997 (Rel. 35, Created)			
t	01-NOV-1997 (Rel. 35, Last sequence update)			
t	15-DEC-1998 (Rel. 37, Last annotation update)			
n	TP53.			
s	Brachydanio rerio (Zebrafish) (Zebra danio), Neopterygii; Teleostei; Chordata; Vertebrata; Actinopterygii; Cyprinoides; Cyprinidae; Rasborinae; Danio.			
p	SEQUENCE FROM N.A.			
x	MEDLINE; P79734.			
a	CHENG R., FORD B.L., O'NEAL P.E., MATHEWS C.Z., BRADFORD C.S.,			
a	THONGTAN T., BARNES D.W., HENDRICKS J.D., BAILEY G.S.;			
t	Zebratfish (Danio rerio) P53 tumor suppressor gene: cDNA sequence and expression during embryogenesis";			
l	Mol. Mar. Biol. Biotechnol. 6:88-97(1997).			
c	-1- FUNCTION: ACT AS A TUMOR SUPPRESSOR IN MANY TUMOR TYPES. INDUCES GROWTH ARREST OR APOPTOSIS DEPENDING ON THE PHYSIOLOGICAL CIRCUMSTANCES OR CELL TYPE, BUT BOTH ACTIVITIES ARE INVOLVED IN TUMOR SUPPRESSION. IT ACTS IN CELL CYCLE REGULATE CELLULAR DIVISION TRANS-ACTIVATOR THAT ACTS TO NEGATIVELY REGULATE CELLULAR DIVISION BY CONTROLLING A SET OF GENES REQUIRED FOR THIS PROCESS. ONE OF THE GENES ACTIVATED IS AN INHIBITOR OF CYCLIN-DEPENDENT KINASES. APOPTOSIS INDUCTION SEEMS TO BE MEDIATED EITHER BY STIMULATION OF BAX AND FAS ANTIGEN EXPRESSION, OR BY REPRESSION OF BCL-2 EXPRESSION (BY SIMILARITY).			
c	-1- SIMILARITY: BELONGS TO THE P53 FAMILY.			
c	This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
r	EMBL: U60804; AAB40617_1; -;			
r	HSRP; P04637; 1TSR.			
r	ZFIN; ZDB-GENE-990115-32; TP53.			
r	PF00870; P53; 1.			
w	Anti-oncogene; DNA-binding; transcription regulation; Activator; Nuclear protein; Phosphorylation; Apoptosis.			
c	-1- SUBCELLULAR LOCATION: NUCLEAR.			
c	-1- DISEASE: P53 IS FOUND IN INCREASED AMOUNTS IN A WIDE VARIETY			
ft	DOMAIN	280	296	
ft	MOD. RES	372	372	
sq	SEQUENCE	373 AA;	41899 MW;	70054B9C CRC32;
ft	Query Match	23.7%	Score 801.5; DB 1;	Length 373;
ft	Best Local Similarity	51.0%	Pred. No. 2.5e-46;	
ft	Matches	158;	Conservative 50; Mismatches 91;	Gaps 5;
ft	Y	85	YTPEEHAASVPFHSPYAQPSSTFDTMSPAPVIPSNTDYPGPHFEVTFQOSSTAKSATWY	144
ft	Db	41	FDPNFFENVLEBQP-QPS---TUPPTSVPTPSDYPDGHGFLRFQSGKSYCTY	94
ft	QY	145	SPLKKLYCQFAKTOPIQKYSTPPPGTAIRAMPYVKKAAEHHTDVYKRCPHNHELGDFN	204
ft	Db	95	SPDLNKLFQCLAKTCVQYMTYDVAPPQGSVYRATAVYKSEHVAEVYRCPHF--RTPD	152
ft	QY	205	EGQSAPRSHLIRVEGNLNSQYVDDPVGROSUVVYFEPQVGTEFTTLYNFMNCNSCOVG	264
ft	Db	153	GDNLAPGHLLRVEGNQRANVYREDNITLRSVFPYAPQGLAEWTYLNMCNSSCMG	212
ft	QY	265	GMNRRPTLITLLENDQVYGLGRSGFEGRICACPGDRNAEDHYREGQALNESSAKNGA	324
ft	Db	213	GMNRRPLTITLLEQGQLGLRSFERYACPGDRKTEESNFKDQE-TKTMATT	271
ft	QY	325	ASKRAFKQSPPPAVPAVGAGYKRR--HGDDTYLQYRGENFELMLKESLELMVY	382
ft	Db	272	GMNRRPLTITLLENDQVYGLGRSGFEGRICACPGDRNAEDHYREGQALNESSAKNGA	324
ft	QY	383	QPLVDSYRQ	392
ft	Db	332	ASDAEKYRQK	341
result	3			
b	P53-CANFA			
b	ID: P53-CANFA			
b	AC: Q95377;			
b	DT: 01-NOV-1997 (Rel. 35, Created)			
b	DT: 15-DEC-1998 (Rel. 37, Last sequence update)			
b	DT: 15-DEC-1998 (Rel. 37, Last annotation update)			
b	DE: CELLULAR TUMOR ANTIGEN P53.			
b	GN: P53			
b	OS: Canis familiaris (Dog)			
b	OC: Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;			
b	OC: Eutheria; Carnivora; Fissipedia; Canidae; Canis.			
b	RN: [1]			
b	RP: SEQUENCE FROM N.A.			
b	RP: SEQUENCE FROM N.A.			
b	RC: TISSUE-LEUCOCYTE;			
b	RC: MEDLINE: 95323915.			
b	RA: KRAEGEL S.A., PAZZI K.A., MADEWELL B.R.;			
b	RT: "Sequence analysis of canine p53 in the region of exons 3-8.";			
b	RL: Cancer Lett. 92:181-186 (1995).			
b	-1- FUNCTION: ACT AS A TUMOR SUPPRESSOR IN MANY TUMOR TYPES. INDUCES GROWTH ARREST OR APOPTOSIS DEPENDING ON THE PHYSIOLOGICAL CIRCUMSTANCES OR CELL TYPE, BUT BOTH ACTIVITIES ARE INVOLVED IN TUMOR SUPPRESSION. IT ACTS IN CELL CYCLE REGULATION, IT IS A TRANS-ACTIVATOR THAT ACTS TO NEGATIVELY REGULATE CELLULAR DIVISION BY CONTROLLING A SET OF GENES REQUIRED FOR THIS PROCESS. ONE OF THE GENES ACTIVATED IS AN INHIBITOR OF CYCLIN-DEPENDENT KINASES. APOPTOSIS INDUCTION SEEMS TO BE MEDIATED EITHER BY STIMULATION OF BAX AND FAS ANTIGEN EXPRESSION, OR BY REPRESSION OF BCL-2 EXPRESSION (BY SIMILARITY).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk).			
b	CC: This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL Outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.ebi.ac.uk/aminoacid/ or send an email to licensing@ebi.ac.uk			

CC: OF TRANSFORMED CELLS. P53 IS FREQUENTLY MUTATED OR INACTIVATED
CC: IN MANY TYPES OF CANCER.

CC: -1- SIMILARITY: BELONGS TO THE P53 FAMILY.

CC: This SWISS-PROT entry is copyright. It is produced through a collaboration
CC: between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC: use by non-profit institutions as long as its content is in no way
CC: modified and this statement is not removed. Usage by and for commercial
CC: entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
CC: or send an email to license@isb-sib.ch).

CC: DR EMBL; AF060514; AAC16909; 1; -
CC: DR HSSP; P0637; LYCS
CC: PROSTE; PS00448; P53; 1.
CC: DR PF00870; P53; 1.
CC: PANT-Oncogene; DNA-binding; Transcription regulation; Activator;
KW Nuclear Protein; Phosphorylation; Apoptosis.
KW DOMAIN 1 59 ASP/GLU-RICH (ACIDIC).
FT DOMAIN 1 68 137 HYDROPHOBIC.
FT DOMAIN 307 381 HIGHLY BASIC AND MAY BE INVOLVED IN
FT DOMAIN 299 311 INTERACTION WITH DNA (BY SIMILARITY).
FT MOD_RES 380 380 NUCLEAR LOCALIZATION SIGNAL (POTENTIAL).
SQ SEQUENCE 381 AA; 42486 MW; 70210863 CRC32;

Query Match 23.0%; Score 778.5; DB 1; Length 381;
Best Local Similarity 44.1%; Pred. No. 8.8e-45; Indels 59; Gaps 8;
Matches 165; Conservative 57; Mismatches 93; Indels 59; Gaps 8;

Qy 14 TFEHLWSSLDEPDSTYFDLPOSSRGNEVGGDPSMDVHLEGMNTSVAQFNLLSSTD 73
Db 18 TFSNLWNL-----LPENNVLSSCIPAYDELL-----LPESVY--NWLDEDSD 58

Qy 74 QMSRAASASPTPTEAHASVPTHSPYAQPSSTFTDMSPAPVPSNTDYPGPHFFYTFOQ 133
Db 59 DAPMPMPSAATPAGPAPSWLSSS-----VPSPTKPTPTYGFGLFLH 102

Qy 134 SSTAKSATWYSPLLKLYCQIAKTCPIQIKVSTPPPGTATRAMPVYKKAHVTDVYKRC 193
Db 103 SGTAKSvTwTYSPLNLKLFQIAKTCPVQVNLWSSPPPNTCVRAHAYIKRSEFTTEVYR 162

Qy 194 CPNHELGDFNEQOSAPASHLRLVEGNLNSQYVDPVTGROSVTPYEPQVGFETTIL 253
Db 163 CPHEERCSDSDG-LAPQHLLRVEGNLRAKYLDNTFESVYVPPYEPVGSYTTIH 221

Qy 254 YNTMCNSCCVGGMNRPPLIITLLEMDGQVJRSPEGRICACGDRKADEDYREQQ 313
Db 222 YNTMCNSCCVGGMNRPPLIITLLEMDGQVJRSPEGRICACGDRKADEDYREQQ 279

Qy 314 ALNESSAANG-----AASRAFKRSPPAVPAAGVKKRHSDEDTYLQRGRENF 365
Db 279 -----KKGEPCPEPPGSKTRALPPSTSSPP----OKKPKDGEFTLQTRGREN 326

Qy 366 ETIIMKLEKSELME 379
Db 327 EMFRNLNEALELKID 340

Query Match 23.0%; Score 778; DB 1; Length 367;
Best Local Similarity 44.1%; Pred. No. 8.8e-45;
Matches 164; Conservative 56; Mismatches 106; Indels 46; Gaps 7;
Qy 15 FEHLWSSLDEPDSTYFDLPOSSRGNEVGGDPSMDVHLEGMNTSVAQFNLLSSTDQ 74
Db 15 FMDLNSMLPYSMQQLPQLPDPDHSSWQEL-----SLEP 46

Qy 75 MSLRASASPTPTEAHASVPTHSPYAQPSSTFTDMSPAPVPSNTDYPGPHFFYTFOQ 134
Db 47 SDPPPPIPPIPPLAAAAPPPLPPTPRA----ASPVVPSTEDYGGDEFYGFVEA 101

Qy 135 STAKSATWYSPLLKLYCQIAKTCPIQIKVSTPPGTATRAMPVYKKAHVTDVYKRC 194
Db 102 GAKSVTCTYSPVNLKVCRLAPQHLLRVEGNLRAKYLDNTFESVYVPPYEPVGSYTTIH 162

Qy 195 PNHELGDFNEQOSAPASHLRLVEGNLNSQYVDPVTGROSVTPYEPQVGFETTIL 254
Db 162 PHERCGGGSDG-LAPQHLLRVEGNLRAKYLDNTFESVYVPPYEPVGSYTTIH 220

Qy 255 NFMCMNSCCVGGMNRPPLIITLLEMDGQVJRSPEGRICACGDRKADEDYREQQ 314
Db 221 NFMCMNSCCVGGMNRPPLIITLLEMDGQVJRSPEGRICACGDRKADEDYREQQ 280

Qy 315 LNESSAKANGASPTPTEAHASVPTHSPYAQPSSTFTDMSPAPVPSNTDYPGPHFFYTFOQ 374
Db 281 A-----GGVAKRA--NSPP-TEAEPKKVNLNDNEFYLYQVRGRRYEMMKEINEA 330

Qy 375 LELME--LYPQP 384
Db 331 LQLAEGGSAPRP 342

RESULT 4
P53-CHICK STANDARD; PRT; 367 AA.
AC P10360.
DT 01-MAR-1989 (Rel. 10, Created)
DT 01-MAR-1989 (Rel. 10, Last sequence update)
DT 15-DEC-1999 (Rel. 39, Last annotation update)
DE CELLULAR TUMOR ANTIGEN P53.
GN TP53.
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Archosauvia; Aves;
OC Neognathae; Galliformes; Phasianidae; Phasianinae; Gallus.

SULT 5
 3_FELCA STANDARD: PRT; 386 AA.
 P41685; QY 65 FNLSSMDQMSRANSASPTPERAASPTPQAQPSSFTDMSPAPIVNTDYPG 124
 01-NOV-1995 (Rel. 32, Created)
 01-NOV-1995 (Rel. 32, Last sequence update)
 01-NOV-1997 (Rel. 35, Last annotation update)
 CELULAR TUMOR ANTIGEN P53.
 TP53
 Felis silvestris catus (cat).
 Eutherota; Carnivora; Fissipedia; Felidae; Felis.
 [1]
 SEQUENCE FROM N.A.
 TISSUE="LYMPH NODE";
 MEDLINE: 94333960.
 OKUDI M., ODEDA A., SAKAI T., OHASHI T., MOMOI Y., YOUN H.Y.,
 WATARI T., GOTOHKA R., TSUJIMOTO H., HASEGAWA A.;
 "Cloning of feline P53 tumor-suppressor gene and its aberration in
 hematopoietic tumors";
 Int. J. Cancer 58: 60-607 (1994).
 [2]
 SEQUENCE OF 34-354 FROM N.A.
 MEDLINE: 9411659.
 O'BRIEN S., J.I., TSUJIMOTO H., HASEGAWA A.;
 "Molecular cloning and chromosomal mapping of feline p53 tumor
 suppressor gene";
 J. Vet. Med. Sci. 55:801-805(1993).
 -|- FUNCTION: ACT AS A TUMOR SUPPRESSOR IN MANY TUMOR TYPES. INDUCES
 GROWTH ARREST OR APOPTOSIS DEPENDING ON THE PHYSIOLOGICAL
 CIRCUMSTANCES OR CELL TYPE. BUT BOTH ACTIVITIES ARE INVOLVED IN
 TUMOR SUPPRESSION. IT ACTS IN CELL CYCLE REGULATION. IT IS A
 TRANS-ACTIVATOR THAT ACTS TO NEGATIVELY REGULATE CELLULAR DIVISION
 BY CONTROLLING A SET OF GENES REQUIRED FOR THIS PROCESS. ONE OF
 THE GENES ACTIVATED IS AN INHIBITOR OF CYCLIN-DEPENDENT KINASES.
 APOPTOSIS INDUCTION SEEMS TO BE MEDIATED EITHER BY STIMULATION OF
 BAX AND FAS ANTIGEN EXPRESSION, OR BY REPRESSION OF BCL-2
 EXPRESSION.
 -|- SUBCELLULAR LOCATION: NUCLEAR
 -|- DISEASE: P53 IS FOUND IN INCREASED AMOUNTS IN A WIDE VARIETY
 OF TRANSFORMED CELLS. P53 IS FREQUENTLY MUTATED OR INACTIVATED
 IN MANY TYPES OF CANCER.
 -|- SIMILARITY: BELONGS TO THE P53 FAMILY.
 This SWISS-PROT entry is copyright. It is produced through a collaboration
 between the Swiss Institute of Bioinformatics and the EMBL outstation
 in the European Bioinformatics Institute. There are no restrictions on its
 use by non-profit institutions as long as its content is in no way
 modified and this statement is not removed. Usage by and for commercial
 entities requires a license agreement (See <http://www.isb-sib.ch/announce/>
 or send an email to license@isb-sib.ch).
 EMBL D26608; PBA05553; 1.
 HSSP; D16460; BAA0327; 1.
 HSSP; P04637; 1SAH.
 PFPAM; PFP00348; P53; 1.
 Anti-oncogene; DNA-binding; Transcription regulation; Activator;
 Nuclear protein; Phosphorylation; Apoptosis.
 DOMAIN 1 59 ASP/GLU-RICH (ACIDIC).
 DOMAIN 304 316 NUCLEAR LOCALIZATION SIGNAL (POTENTIAL).
 MOD. RES 385 385 PHOSPHORYLATION BY SIMILARITY.
 CONFLICT 285 285 K->R (IN REF. 2).
 SEQUENCE 386 AA; 42692 MW; D6C7132A CRC32; 2.

Query Match 22.9%; Score 776; DB 1; Length 386;
 Best Local Similarity 44.4%; Pred. No. 1.3e-44;
 Matches 170; Conservative 55; Mismatches 104; Indels 54; Gaps 9;

5 TATSPDGTRTIEHMLSSLEPDSTYFDLQSSRGNNEYGGDSSMDYFHLEGMTTSVMAQ 64

Db 9 TIEPPPLSOETFSELWNL-----LPE---INVLSSELSSANNELPSEDVA----- 51
 Db 51 -NWLDEAPPDDAGMSAVAPAPAPAPAPAPAS--WPLSF-----VPSQKTIPG 98
 QY 125 HRFPEVITQQSSTAKSATWVSPPLKKLYCIAKTCPIQKVVSPPPGTAIRAMPVYKKA 184
 Db 99 YGPHLGLQSGTAKSTCTISPPNKLFCOLAKTCPIQKVVSPPPGTCYRMAIYKKS 158
 QY 185 EHTDYVYKRCPNAHGRDFNEGOSAPASHLIRVEGNNSQYVDPVTGRQSYVYPEPPQ 244
 Db 159 EPTTEVTRCPHHERGDPSSG-LAPPQHILRVEGNLHAKYLDQRTFRHSVVVYEEPE 217
 QY 245 VGTETFTTLYNFMNCNSCGGMNRRPILITLMEGRDGGYLGRRSFEGRICACPGRDRKA 304
 Db 218 VGSDCCTTHYNFMNCNSCGGMNRRPITITLDESGNLLGRNSFEYRVCAPGRDRRT 277
 QY 305 DEDHYREQALNESSKNG-----ASKRAFKOSPPAVPAVGAGYKRRHGDEDTY 356
 Db 278 EBBNFR-----KRGCPERPPGSKTRALPPSTSTPP-----QKKRBLDGEYFT 322
 QY 357 LQYGRNENFEILMLKLESLEME 379
 Db 323 LQTRGRERFEMFRELNEALELKD 345
 RESULT 6
 ID P53_BOVIN STANDARD: PRT; 386 AA.
 ID P53_BOVIN AC: 02628;
 DT 01-NOV-1997 (Rel. 35, Created)
 DT 01-NOV-1997 (Rel. 35, Last sequence update)
 DT 15-JUL-1998 (Rel. 36, Last annotation update)
 DE CELLULAR TUMOR ANTIGEN P53.
 GN TP53.
 OS Bos taurus (Bovine), and Bos indicus (zebu).
 OC Bovaria; Metacozia; Chordata; Craniata; Vertebrata; Mammalia;
 OC Bovinae; Bos.
 RN [1]
 RP SEQUENCE FROM N.A.
 RC SPECIES=BOVINE; TISSUE=LIVER;
 RX MEDLINE; 93152839.
 RA [2]
 RT "Nucleotide sequence of the bovine P53 tumor-suppressor cDNA.";
 RL DNA Seq. 5:261-264 (1995).
 RN [3]
 RP SEQUENCE OF 13-186 FROM N.A.
 RC SPECIES=BOVINE; STRAIN=HOLSTEIN; TISSUE=THYMUS;
 RX MEDLINE; 96140400.
 RA KONORI H., ISHIGURO N., HORIUCHI M., SHINAGAWA M., AIDA Y.;
 RT "Predominant p53 mutations in enzymatic bovine leukemic cell lines.";
 RL Immunol. Immunopathol. 52:53-63 (1996).
 RN [4]
 RP SEQUENCE FROM N.A.
 RC SPECIES=B. INDicus; STRAIN=BORAN; TISSUE=BLOOD;
 RA BISHOP R.R.P.; GOBRIGT E.E.I.;
 RL Submitted (APR-1997) to the EMBL/GenBank/DBJ databases.
 CC -|- FUNCTION ACT AS A TUMOR SUPPRESSOR IN MANY TUMOR TYPES. INDUCES
 CC GROWTH ARREST OR APOPTOSIS DEPENDING ON THE PHYSIOLOGICAL
 CC CIRCUMSTANCES OR CELL TYPE. BUT BOTH ACTIVITIES ARE INVOLVED IN
 CC TUMOR SUPPRESSION. IT ACTS TO NEGATIVELY REGULATE CELLULAR DIVISION
 CC TRANS-ACTIVATOR THAT ACTS TO POSITIVELY REGULATE CELLULAR DIVISION
 CC BY CONTROLLING A SET OF GENES REQUIRED FOR THIS PROCESS. ONE OF
 CC THE GENES ACTIVATED IS AN INHIBITOR OF CYCLIN-DEPENDENT KINASES.
 CC APOPTOSIS INDUCTION SEEMS TO BE MEDIATED EITHER BY STIMULATION OF
 CC BAX AND FAS ANTIGEN EXPRESSION, OR BY REPRESSION OF BCL-2
 CC SUBCELLULAR LOCATION: NUCLEAR.
 CC -|- DISEASE: P53 IS FOUND IN INCREASED AMOUNTS IN A WIDE VARIETY
 CC OF TRANSFORMED CELLS. P53 IS FREQUENTLY MUTATED OR INACTIVATED

2/96 is '96

CC -1- SIMILARITY: BELONGS TO THE P53 FAMILY.

CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions. This statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.ebi.sib.ch/announce/> or send an email to license@ebi.sib.ch).

DR EMBL; X11704; CA57348.1; -;

DR EMBL; D49825; BAA08629.1; -;

DR HSSP; U74486; AAB1214.1; -;

DR PROSITE; P04637; LYCR;

DR PROSITE; PS03348; P53; 1.

DR PFAM; PF00870; P53; 1.

KW Anti-oncogene; DNA-binding; Transcription regulation; Activator; Nuclear Protein; Phosphorylation; Apoptosis.

FT DOMAIN 1 59 ASP/GLU-RICH (ACIDIC). NUCLEAR LOCALIZATION SIGNAL (POTENTIAL).

FT DOMAIN 304 316 PHOSPHORYLATION (BY SIMILARITY).

FT MOD RES 385 385 R -> T (IN REF. 2).

FT CONFFLICT 380 380

SO SEQUENCE 386 AA; 43255 MW; 0322BF3D CRC32; Score 760.5; DB 1; Length 386; Best Local Similarity 44.2%; Pred. No. 1.4e-13; Matches 169; Conservative 63; Mismatches 105; Indels 45; Gaps 11;

Qy 60 SYMAQFNLLSSTMDQNSRRAASAPYTT-----PERHAASVPTHS-PYAQPSTFDTM 109

Db 24 NLPPENNLSS - -ELSAVPPDQLPPTDVTWLDQCPNEAPMPEPSAAPPAT---- 77

Qy 110 SPAV-----IPSNTDYPGPHEFYTFOQSSTPAKSATWTVSPILLKLYCQIAKTCPI 161

Db 77 - -PAPATSWPLSSFVPSQKTFQGFLQSQSTAKSVCTYSPSLANKLFCQIAKTCPIV 135

Qy 162 QIKVSPPPPTAATRAMPYKKAHNTDVKRCPHEDFGNGQASAPASHLIRVEGNN 221

Db 136 QLWVDSPPPPGTRVAMATKKLEMLTEYVRCPHERSSDYSG-LAPPQHLLRVEGNN 194

Qy 222 LSQYVDDPVTGROSQVVPYEPQGTYEFTVYFNMNCNSCCVGNNRPLIITLMDSC 281

Db 195 RAEYLDRNTRHSTVTPVESPTESECTIHYFMCNSCNGMNRPLIITLMDSC 254

Qy 282 GOVLGRSFEGRICACPGDRKDADEHYREQ-QALNESSAKNGASKRAFKQSPPAVPL 340

Db 255 GNLGRNSFEVRCACPGDRRTEEENLRKKQGQSCPEPPR--STKRALPNTSSSQ- 311

Qy 341 GAGVKKERRHEGDEDTYLQVRGRENTEILMLKESIEMELVYQPVLVDSYRQQQLLORPS 400

Db 311 -- -PKKKPLGEYFTLQINGKFRYEMFRELDALELDKA-----DGRGEGESRAHSS 360

Qy 401 HLQP---PSYGPVLSPMNKYHG 419

Db 361 HLKKRKPSPSCKKPKMLKREG 382

RESULT 7

ID P53-SHEEP STANDARD; PRT; 382 AA.

AC P51664;

DT 01-OCT-1996 (Rel. 34, Created)

DT 01-OCT-1996 (Rel. 34, Last sequence update)

DT 01-NOV-1997 (Rel. 35, Last annotation update)

DE CELLULAR TUMOR ANTIGEN P53.

GN Ovis aries (Sheep); Metazoa; Chordata; Craniata; Vertebrata; Mammalia;

OC Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;

OC Caprinae; Ovis [Caprini]

OS

DB

QY 229 PIVGROSTVYPPEPPQVGTTESTTILNFMNCNSCCVGNNRPLIITLMDQVGLRR 288

DB 198 RNTFRHSTVVPVESPTESECTIHYFMCNSCNGMNRPLIITLMDSGNLLGRS 257

QY 289 SFERRICACPGDRKDADEHYREQ-QALNESSAKNGASKRAFKQSPPAVPLGAGYKRR 347

DB 258 SFERVICACPGDRKDADEHYREQ-QKTKRALSSTSSPQ---QKK 309

QY 348 RHEDEDTYLQVRGRENTEILMLKESIEMELVYQPVLVDSYRQQQLLQRPSHLQP--- 405

DB 310 KPLDGEFTLQGRKRFEMPRELNEALELMD----AQAGEPGESERAHSSHLRSKG 363

QY 405 PSIGPVLSPMNKYHG 419

DB 364 PSPSCKKPKMLREG 378

SEQUENCE 396 AA; 43631 MW; C2668ADE CRC32:

Query Match 22.1%; Score 749; DB 1; Length 396;
Best Local Similarity 43.8%; Pred. No. 8.1e-43;
Matches 165; Conservative 58; Mismatches 104; Indels 50; Gaps 10;

QY 14 TFEHLVSSLDEPDSTYDLPQSRGNNNEVYGGTDSMDYFILEGTTSTMQAQENLSSMMD 73
DB 18 TFSIDLKLLPPNNVLSTLPS-----DSETFLESENVA-----GWELEDGE 59

QY 74 QMSRASASASPYTPHEAASYP--THSPYAQPSSTFDTNSPAPY--1PSNTDYPGPYHF 127
DB 60 ALQGSAAAAPAP--AEDDEATPAPVASAPAP-----PWPWSSSSPSYKTYQGDYGF 112

QY 128 EYTFQOSSTAKSATWTPSPPLKKLYCQIATCPQIKVSTTPPPGTARAMPYKKAELH 187
DB 113 RIGFELSGTAKSVTCTYSPSLNKLCPOLAKTCYQVWVSTTPPGTGYTRAMAYKLOM 172

QY 188 TDVVKRCOPNHLGRDNEGOS-APASHLIVEGNLNLQYDDPTGROSIVVYEPPEVG 246
DB 173 TEVYRCRPHIERS--SEGDSLAPPQHLLIVEGNMHAELDDDTGTRFRRISVYVYEPPEVG 229

QY 247 TEFTTLLYFNMCNSSEVGGNRPLILITLLEMRDQYQVGRSRSEGRCACPGRDRADE 306
DB 230 SDCTTTHYNNMCNSCAGGNRPLITLLEDSGNLGRNPRFRCACPGRDRADE 289

QY 307 DHYREQ---QALINSSAKNGAASKRAFKOSPPAPALGAVKRRHGDEDTYYLOYRGR 362
DB 290 KNFQKKGEPCEPCKPEPSAKRALPNTSSSPQ-----RKRLDGEYFTLKRQG 338

QY 363 ENFTELMKIKESLLEME 379
DB 339 ERFKMEQELNEALELRD 355

RESULT 10
P53_CIGR STANDARD; 393 AA.
ID P53_CIGR STANDARD; 393 AA.
DT 09/18/97; P97558; P97798;
DT 01-NOV-1997 (Rel. 35, Created)
DT 01-NOV-1997 (Rel. 35, Last sequence update)
DT 01-NOV-1997 (Rel. 35, Last annotation update)
DE CELLULAR TUMOR ANTICEN P53.
GN TP53 OR P53.
OS Cricetulus griseus (Chinese hamster).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae; Cricetulus.
RN [1] SEQUENCE FROM N.A.
RP CHAUDH W., MI L.J., BOORSTEIN R.J.;
RN Submitted (MAR-1997) to the EMBL/GenBank/DDBJ databases.
[2] SEQUENCE FROM N.A.
RP TISSUE-LIVER;
RX MEDLINE; 97183659.
RA LEE H., LARNER J.M., HANLIN J.L.;
RT "Cloning and characterization of Chinese hamster p53 cDNA.";
RN Gene 184:177-183(1997).
RN [1] SEQUENCE FROM N.A.
RC TISSUE-EMBRYONIC FIBROBLAST;
RA SHIMIZU T., NIKAIKO O., SUZUKI F.;
RL Submitted (JUN-1998) to the EMBL/GenBank/DDBJ databases.
CC - FUNCTION: ACT AS A TUMOR SUPPRESSOR IN MANY TUMOR TYPES, INDUCES
GROWTH ARREST OR APOPTOSIS, DEPENDING ON THE PHYSIOLOGICAL
CIRCUMSTANCES OR CELL TYPE, BUT BOTH ACTIVITIES ARE INVOLVED IN
TUMOR SUPPRESSION. IT ACTS IN CELL CYCLE REGULATION, IT IS A
TRANS-ACTIVATOR THAT ACTS TO NEGATIVELY REGULATE CELLULAR DIVISION
BY CONTROLLING A SET OF GENES REQUIRED FOR THIS PROCESS. ONE OF
THE GENES ACTIVATED IS AN INHIBITOR OF CYCLIN-DEPENDENT KINASES.
CC APOPOPTOSIS INDUCTION SEEMS TO BE MEDIATED EITHER BY STIMULATION OF
BAX AND FAS ANTIGEN EXPRESSION, OR BY REPRESSION OF BCL-2

CC EXPRESSION: NUCLEAR.
CC -1- SUBCELLULAR LOCATION: NUCLEAR.
CC -1- DISEASE: P53 IS FOUND IN INCREASED AMOUNTS IN A WIDE VARIETY
CC OF TRANSFORMED CELLS. P53 IS FREQUENTLY MUTATED OR INACTIVATED
CC IN MANY TYPES OF CANCER.
CC -1- SIMILARITY: BELONGS TO THE P53 FAMILY.
CC
CC This SWISS-PROT entry is copyright. It is produced through a collaboration
CC between the Swiss Institute of Bioinformatics and the EMBL outstation -
CC the European Bioinformatics Institute. There are no restrictions on its
CC use by non-profit institutions as long as its content is in no way
CC modified and this statement is not removed. Usage by and for commercial
CC entities requires a license agreement (See <http://www.ebi.ac.uk/announce/>
CC or send an email to license@ebi.ac.uk).
CC
CC DR EMBL: Y08900; CAA70108_1;
CC DR EMBL: Y08901; CAA70109_1;
CC DR EMBL: U50395; AAC550040_1;
CC DR EMBL: D86070; BAA13004_1;
CC DR HSSP: P04637; LYCQ;
CC DR PROSITE: PS00348; P53_1;
CC DR PFAM: PF00870; P53_1;
CC DR Anti-oncogene; DNA-binding; Transcription regulation; Activator;
CC KW Nuclear protein; Phosphorylation; Apoptosis;
CC ET DOMAIN 1 74
CC ET DOMAIN 75 150
CC ET DOMAIN 316 390
CC ET DOMAIN 311 323
CC ET MOD_RES 392 392
CC ET VARIANT 133 133
CC ET VARIANT 135 135
CC ET CONFLICT 103 103
CC SEQUENCE 393 AA; 43378 MW; 402EB149 CRC32;
CC
Query Match 22.0%; Score 745.5; DB 1; Length 393;
Best Local Similarity 43.9%; Pred. No. 1.4e-42;
Matches 165; Conservative 56; Mismatches 111; Indels 41; Gaps 8;
QY 14 TFEHLVSSLDEPDSTYDLPQSRGNNNEVYGGTDSMDYFILEGTTSTMQAQENLSSMMD 73
DB 18 TFSDLWKLPPNNVLSTLPS-----DSETFLESENVA-----GWELEDGE 59
QY 74 QMSRAAASASPYTPHEASVPHSPYQAPSSTFDMSPAPVPSSTDYDGPYHPEVYRQ 133
DB 67 AASATAEDPYTETPAPVASA-TPMLPLSS-----VPSYKTYQGDYGRFLGFTH 115
QY 134 SAKSAWTPYSPLLKLYCQAKTPIQIYKSTTPPPGTAIRAMPVYKAHYDVTYR 193
DB 116 SGIAKSVTCTYSPSLNKLFCQIAKTCYQVWVSTTPPGTGYTRAMAYKQLQMTTEVYR 175
QY 194 CPNHELGDFDNEEQS-APASHLIRVEGNNLQSQYDQPTGROSIVVYPEPPQYGEFTT 252
DB 176 CPHHERS ---SEGDSLAPPQHILIRVEGNLHAEYLDQKQFRHSTVVPPEPGSDCITI 232
QY 253 LYNNMCMNSCYGMNMRPILITITIEMRDQGYLGRSFEERICACPGRDKRAEDHYEQ 312
DB 233 HYNMCMNSCYGMNMRPILITITDPSRLGLNSFEVYRICACPGRDRRTKKNFK 292
QY 313 ---QALNESSAKNGAASKRAFKQSPPAVAGVKKRHDGDTYLOVRENGENFIL 368
DB 293 GECOPELPKSKAALPNTS---SSPP-----PKRKTLGEYFTLKIRHETRKFMF 341
QY 369 MLLKESLIME 379
DB 342 QELNEALELKD 352
RESULT 11
P53_XENLA STANDARD;
ID P53_XENLA
AC P07193;

Q1-APR-1988 (Rel. 07, Created)	49 -ADTVLQ-EGIMGN- - - - -AVPVVTSCA- - - - -
Q1-APR-1988 (Rel. 07, Last sequence update)	
Q1-NOV-1997 (Rel. 35, Last annotation update)	
TP53.	
Xenopus laevis (African clawed frog).	
Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Amphibia;	
Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae; Xenopodinae;	
Xenopus.	
[1]	
SEQUENCE FROM N.A.	
MEDLINE: 8814-1684.	
SOUSSI T., DE FROMENTEL C.C., MECHALI M., MAY P., KRESS M.;	
Cloning and characterization of a cDNA from <i>Xenopus laevis</i> coding	
for a protein homologous to human and murine p53.;	
Oncogene 1:71-78(1987).	
[2]	
SEQUENCE FROM N.A.	
MEDLINE: 94134403.	
HOEVER M., CLEMENT J.H., WEDLICH D., MONTENARH M., KNOCHEL W.;	
Overexpression of wild-type p53 interferes with normal development	
in <i>Xenopus laevis</i> embryos.;	
Oncogene 9:109-120(1994).	
- - FUNCTION: ACT AS A TUMOR SUPPRESSOR IN MANY TUMOR TYPES. INDUCES	
GROWTH ARREST OR APOPTOSIS DEPENDING ON THE PHYSIOLOGICAL	
CIRCUMSTANCES OR CELL TYPE, BUT BOTH ACTIVITIES ARE INVOLVED IN	
TUMOR SUPPRESSION. IT ACTS IN CELL CYCLE REGULATION, IT IS A	
TRANS-ACTIVATOR THAT ACTS TO NEGATIVELY REGULATE CELLULAR DIVISION	
BY CONTROLLING A SET OF GENES REQUIRED FOR THIS PROCESS. ONE OF	
THE GENES ACTIVATED IS AN INHIBITOR OF CYCLIN-DEPENDENT KINASES.	
APOPTOSIS INDUCTION SEEMS TO BE MEDIATED EITHER BY STIMULATION OF	
BAX AND FAS ANTIGEN EXPRESSION, OR BY REPRESSION OF BCL-2	
EXPRESSION (BY SIMILARITY).	
- - SUBCELLULAR LOCATION: NUCLEAR.	
- - TISSUE SPECIFICITY: UBIQUITOUS.	
- - SIMILARITY: BELONGS TO THE P53 FAMILY.	

This SWISS-PROT entry is copyright. It is produced through a collaboration	
between the Swiss Institute of Bioinformatics and the EMBL outstation -	
the European Bioinformatics Institute. There are no restrictions on its	
use by non-profit institutions as long as its content is in no way	
modified and this statement is not removed. Usage by and for commercial	
entities requires a license agreement (See http://www.ebi-sib.ch/announce/	
or send an email to license@ebi-sib.ch).	

EMBL: M36562; AAA99923.1; -;	
EMBL: Y05191; CAA2881.1; -;	
EMBL: S63353; AAC60746.1; -;	
PIR: A29376; A29376.	
HSSP; P01637; 1TSR.	
PROST; PS00348; P53; 1.	
PFAM; PF00870; P53; 1.	
Nuclear protein; Phosphorylation; Apoptosis; Activator;	
Nuclear localization signal (potential).	
DOMAIN 281 293 NUCLEAR LOCALIZATION SIGNAL (POTENTIAL).	
MOD_RES 362 362 PHOSPHORYLATION (BY SIMILARITY).	
CONFICT 52 52 T > S (IN REF. 2).	
CONFICT 71 71 MISSING (IN REF. 2).	
CONFICT 296 296 MISSING (IN REF. 2).	
SEQUENCE 363 AA; 40692 MW; 75D7D796 CRC32;	
Query Match 21.9%; Score 741; DB 1; Length 363;	
Best Local Similarity 41.7%; Pres. No. 2, 5e-42;	
Matches 169; Conservative 54; Mismatches 92; Indels 90; Gaps 12;	
1 MAQATSPD--GGTTEHLLSSLEED-----STYDFDQSSRGNEVYGGT 45	
1 MEPSSETGMDPPLSQEFPEDLNSLL-DPLQIVTCRDLNLSSEFDPLA----- 49	
46 DSSHDYFHLEGMTSVMQAQNLLSDMQSSRAASASPTPHEAASYPHSPYQPSST 105	
[1] : : : : : : : : : : : : : : : : :	

SEQUENCE FROM N.A.	
Db 106 FDTMSPAVPVSNTDYPGPHEFTFQQSSTAKATWTTSPKKLYCQIAKTCPIQIKY 165	
Db 71 -----VPTSTDYAGKYGQLDQQNGTAKSTVCTYSPENLFCQLAKTCPILLVRY 121	
Db 166 STPPPPGTAIRAMPVKKAAHHTDVKRCPNEHLDGFNNGQ-SAPASHLIRVEGNLNSQ 224	
Db 122 ESPPPRGSRSLTAVKSEHVAEVYKRCPIHE-FRSVEFGEDAAPPSSHLMRVEENLQAV 179	
Db 225 YVDDPVTSRQSVYVPPQVYTFITLNFMCNNSCYGMNRPAPLITLLENRDQV 284	
Db 180 YMEDVNSGRHSTCVP1EGPQVTCCTVLNNMCSMCGMNRPAPLITLLENRDQV 239	
Db 285 LGRRSFEGRICACPGRDRKADEDHREQOALNESSAKNGAASKRAFKOSPPAVPALLGAGV 344	
Db 240 LGRCFCEVRCACPGRDRTEEDNTKKGRLKPS-----GKRLAHPSSSEPL--P 289	
Db 345 KKRR--HGDEDTYLQYRGRENEFELMKIKESLLEMVYQPLVY 386	
Db 290 KKRLVVYVDDDEE1FTLRIGRSRYENIKLNDLQESLQKV 334	

RESULT 12	
P53_RAT ID P53_RAT STANDARD; PRT; 391 AA.	
AC P10461; 009168;	
DT 01-MAR-1989 (Rel. 1.0, Created)	
DT 01-MAR-1989 (Rel. 1.0, Last sequence update)	
DT 01-NOV-1997 (Rel. 35, Last annotation update)	
DE CELLULAR TUMOR ANTIGEN P53.	
GN P53 OR P53.	
OS Rattus norvegicus (Rat).	
OC Eutheria; Metazo; Chordata; Craniata; Vertebrata; Mammalia;	
OC Rodentia; Sciurognathi; Muridae; Murinae; Rattus.	
RN [1]	
RP SEQUENCE FROM N.A.	
RX MEDLINE: 89083585.	
RA SOUSSI T.	
RT "Nucleotide sequence of a cDNA encoding the rat p53 nuclear	
RT oncoprotein.";	
RL Nucleic Acids Res. 16:11384-11384 (1988).	
RN [2]	
RP SEQUENCE FROM N.A.	
RX MEDLINE: 93181268.	
RA HULL J. E., SCHNEIDER R. P.;	
RT "Structure of the rat p53 tumor suppressor gene.";	
RL Nucleic Acids Res. 21:713-717 (1993).	
RN [3]	
RP SEQUENCE FROM N.A.	
RC STRAIN-SPRAGUE-DAWLEY;	
RA MATHUPALAS S. P.;	
RL Submitted (APR-1997) to the EMBL/GenBank/DBJ databases.	
CC - - FUNCTION: ACT AS A TUMOR SUPPRESSOR IN MANY TUMOR TYPES. INDUCES	
CC GROWTH ARREST OR APOPTOSIS DEPENDING ON THE PHYSIOLOGICAL,	
CC CIRCUMSTANCES OR CELL TYPE, BUT BOTH ACTIVITIES ARE INVOLVED IN	
CC TUMOR SUPPRESSION. IT ACTS IN CELL CYCLE REGULATION, IT IS A	
CC TRANS-ACTIVATOR THAT ACTS TO NEGATIVELY REGULATE CELLULAR DIVISION	
CC BY CONTROLLING A SET OF GENES REQUIRED FOR THIS PROCESS. ONE OF	
CC THE GENES ACTIVATED IS AN INHIBITOR OF CYCLIN-DEPENDENT KINASES.	
CC APOPTOSIS INDUCTION SEEMS TO BE MEDIATED EITHER BY STIMULATION OF	
CC BAX AND FAS ANTIGEN EXPRESSION, OR BY REPRESSION OF BCL-2	
CC - - SUBCELLULAR LOCATION: NUCLEAR.	
CC - - DISEASE: P53 IS FOUND IN INCREASED AMOUNTS IN A WIDE VARIETY	
CC OF TRANSFORMED CELLS. P53 IS FREQUENTLY MUTATED OR INACTIVATED	
CC - - SIMILARITY: BELONGS TO THE P53 FAMILY.	
CC This SWISS-PROT entry is copyright. It is produced through a collabora-	
CC tion between the Swiss Institute of Bioinformatics and the EMBL outstat-	
CC ion. This entry is produced by the Bioinformatics Institute. There are no	
CC restrictions on its content as its content is in no	
CC use by non-BioInfor- matics Institute.	

Query	Match	Score	Length	DB	1;
21.7%	Score 735.5;	DB 1;	Length 391;		
Best Local Similarity	42.8%	Pred. No. 6.3e-42;			
Matches 167;	Conservative 55;	Mismatches 87;	Indels 81;	Gaps	12;
Py	TEFHLSWSSRPDSTFDLPOSSRGNNVEVGGTDSMDV-----HLEGMTTSVMAQFN 66				
Db	TFSCKWLPPDDI---LPIPA-----TGSPPNSMEDILPQDVAELL-----				59
Y	LLSSTDQMSRAASASPTPEHAASVPHSPKAQPSSTFDIMSPV-----				115
Db	59 -----PEEALQV--SAPAROEPG--TRAPAPAPASATPWPLSS 93				
Y	115 -IPSTDYPSPHFFEVTFDOSSTARSAATTATYSPLLKLYCQIARTCPIQIKYSTTPPPGT 173				
Db	94 SVPSQTKYQNYGFHLGFQSQTAKSYMTYSISLNKICQLAKTCPVQLWTTSTPPPGT 153				
Y	174 AIRRAMPVYKKAEHVTDYVYKRCPNHELGPNEGOSAPASHLIRVEGNLNSQYDDPWTGR 233				
Db	154 RVRAIMAIYKRSQHTEVVRCPHHERCS-----GDG-LAPPQHLLTVEGNYPAEYLDDROTFR 211				
Y	234 QSVVYYPEPQVGEFTTLYNFCNNSCQGMNRRPILITLLEMRDGQVIGRSEGR 293				
Db	212 HSVYVYYPEVGSQDTTHYKNCNCNSQGMGNRRPILITLLEDSSGNLGRDSFEVR 271				
Y	294 ICACPGDRKADEDHYEQQ---ALNESSAKNGAASKRAFKOSPPAPVALGAGVYKRRH 349				
Db	272 VCACPGDRKRTTEENFRKEEHCPELPPQSA-----KRALPTSTSSPQ-----OKKKP 320				
Y	350 GDEDTYYLQYRGRENFEILMKLKESELME 379				
Db	321 LDGEYFTLTKRGRERFEMTNEALKEELKD 350				
RESULT	13				
53_MACMU					
D	MACMU	STANDARD:			
C	P56124;	PRN:	393 AA.		
T	15-JUL-1998 (Rel. 36, Created)				
T	15-JUL-1998 (Rel. 36, Last sequence update)				
T	15-DEC-1998 (Rel. 37, Last annotation update)				
E	CELLULAR TUMOR ANTIGEN F53.				

Macaca mulatta (Rhesus macaque).
 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia;
 Eutheria; Primates; Catarrhini; Cercopithecoidea; Cercopithecinae;
 Macaca.

[1] SEQUENCE FROM N.A.

KHAN M.A., HANSEN C., WELSH J.A., BENNETT W.P.;
 Submitted (FEB-1996) to the EMBL/GenBank/DDBJ databases.

-1- FUNCTION: ACT AS A TUMOR SUPPRESSOR IN MANY TUMOR TYPES. INDUCE GROWTH ARREST OR APOPTOSIS DEPENDING ON THE PHYSIOLOGICAL CIRCUMSTANCES OR CELL TYPE, BUT BOTH ACTIVITIES ARE INVOLVED IN TUMOR SUPPRESSION. IT ACTS IN CELL CYCLE REGULATION, IT IS A TRANS-ACTIVATOR THAT ACTS TO NEGATIVELY REGULATE CELLULAR DIVISION BY CONTROLLING A SET OF GENES REQUIRED FOR THIS PROCESS. ONE OF THE GENES ACTIVATED IS AN INHIBITOR OF CYCLIN-DEPENDENT KINASES. APOPTOSIS INDUCTION SEEMS TO BE MEDIATED EITHER BY STIMULATION OF BAX AND FAS ANTIGEN EXPRESSION, OR BY REPRESSION OF BCL-2 EXPRESSION.

-1- SUBCELLULAR LOCATION: NUCLEAR.

-1- DISEASE: P53 IS FOUND IN INCREASED AMOUNTS IN A WIDE VARIETY OF TRANSFORMED CELLS. P53 IS FREQUENTLY MUTATED OR INACTIVATED IN MANY TYPES OF CANCER.

-1- SIMILARITY: BELONGS TO THE P53 FAMILY.

This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation of the European Bioinformatics Institute. There are no restrictions on use by non-profit institutions. All other rights reserved. Use of this information for commercial purposes is not permitted without written permission from the copyright holders.

RA BENCHIMOL S.; "Isolation and characterization of a human p53 cDNA clone: expression of the human p53 gene"; *EMBO J.* 3:3257-3262(1984).

RL [7]

RN

RP NUCLEAR LOCALIZATION SIGNAL.

RX MEDLINE; 90191730.

RA ADDISON C., JENKINS J.R., STURZBECHER H.-W.; "The p53 nuclear localisation signal is structurally linked to a p34cdc2 kinase motif"; *Oncogene* 5:423-426(1990).

RN [8]

RP PHOSPHORYLATION BY P60/CDC2 AND CYCLIN B/CDC2.

RX MEDLINE; 90280456.

RA BISCHOFF J.R., FRIEDMAN P.N., MARSHAK D.R., PRIVES C., BEACH D.; "Human p53 is phosphorylated by p60-cdc2 and cyclin B-cdc2"; *Proc. Natl. Acad. Sci. U.S.A.* 87:4766-4770(1990).

RN [9]

RP DEPHOSPHORYLATION BY PPA.

RX MEDLINE; 91172186.

RA SCHEIDTMANN K.H., KUMBY M.C., RUNDELL K., WALTER G.; "Dephosphorylation of simian virus 40 large-T antigen and p53 protein by protein phosphatase 2A: inhibition by small-T antigen"; *Mol. Cell. Biol.* 11:1996-2003(1991).

RN [10]

RP STRUCTURE BY NMR OF 319-360.

RX MEDLINE; 94294808.

RA CLORE G.M., OTCICHINSKI J.G., SAKURANO N., SAKAMOTO H., APPEL A.E., GRONENBERG A.M.; "High-resolution structure of the oligomerization domain of p53 by multidimensional NMR"; *Science* 265:396-399(1994).

RN [11]

RP STRUCTURE BY NMR OF 325-355.

RX MEDLINE; 95293092.

RA LEE W., HARVEY T.S., YIN Y., YAU P., LITCHFIELD D., ARROWSMITH C.H.; "Solution structure of the tetrameric minimum transforming domain of p53"; *Nat. Struct. Biol.* 1:877-890(1994).

RN [12]

RP STRUCTURE BY NMR OF 326-354.

RX MEDLINE; 98036899.

RA MCCOY M., STAVRIDIS E.S., WATERMAN J.L., WIECZOREK A.M., OPELLA S.J., HALAZONETIS T.D.; "Hydrophobic side-chain size is a determinant of the three-dimensional structure of the p53 oligomerization domain"; *EMBO J.* 16:6230-6236(1997).

RN [13]

RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 94-29.

RX MEDLINE; 94294806.

RA CHOI Y., GORINA S., JEFFREY P.D., PAVLETICH N.P.; "Crystal structure of a p53 tumor suppressor-DNA complex: understanding tumorigenic mutations"; *Science* 265:346-355(1994).

RN [14]

RP X-RAY CRYSTALLOGRAPHY (2.3 ANGSTROMS) OF 13-29 IN COMPLEX WITH MDM2.

RX MEDLINE; 97081050.

RA KUSSIE P.H., GORINA S., MARECHAL V., MOREAU J., LEVINE A.J., PAVLETICH N.P.;

RT "Structure of the MDM2 oncoprotein bound to the p53 tumor suppressor transactivation domain"; *Science* 274:948-953(1996).

RN [15]

RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS) OF 97-287 IN COMPLEX WITH 53BP2.

RX MEDLINE; 97035414.

RA GORINA S., PAVLETICH N.P.;

RT "Structure of the p53 tumor suppressor bound to the ankyrin and SH3 domains of 53BP2"; *Science* 274:1001-1005(1996).

RN [16]

RP REVIEW.

RX MEDLINE; 94090335.

RA HARRIS C.C.;

"p53: at the crossroads of molecular carcinogenesis and risk assessment"; *Science* 262:1980-1981(1993).

RT [17]

RN

RP REVIEW ON VARIANTs.

RX MEDLINE; 91289156.

RA HOOLSTEIN M., STRANSKY D., VOGELSTEIN B., HARRIS C.C.;

RT "p53 mutations in human cancers"; *Science* 253:9-5(1991).

RL [18]

RP REVIEW ON VARIANTs.

RX MEDLINE; 96271983.

RA DE VRIES E.M.G., RICKE D.O., DE VRIES T.N., HARTMANN A., BLASZYK H., LIOU D., SOSSI T., KOVACH J.S., SOMMER S.S.;

RA OLSCHWANG S., LADRETT-PUIG P., VASSAL A., SALMON R.-J., THOMAS G.;

RT "Characterisation of a frequent polymorphism in the coding sequence of the p53 gene in colonic cancer patients and a control population"; *Hum. Mutat.* 7:202-213(1996).

RN [19]

RP VARIANT ARG-72.

RX MEDLINE; 91153807.

RA OLSCHWANG S., LADRETT-PUIG P., VASSAL A., SALMON R.-J., THOMAS G.;

RT "Database of mutations in the p53 and APC tumor suppressor genes designed to facilitate molecular epidemiological analyses"; *Hum. Mutat.* 6:369-370(1991).

RL [20]

RP VARIANT LFS THR-133.

RX MEDLINE; 92034774.

RA LAW J.C., STRONG L.C., CHIDAMBARAM A., FERRILL R.E.;

RT "A germ line mutation in exon 5 of the p53 gene in an extended cancer family"; *Cancer Res.* 51:6385-6387(1991).

RL [21]

RP VARIANT LFS CYS-245; TRP-248; PRO-252 AND LYS-258.

RX MEDLINE; 91057657.

RA MALKIN D., LI F.-P., STRONG L.C., FRAJMENT J.F. JR., NELSON C.E., KIM D.H., KASSEL J., GRYKA M.A., BISCHOFF F.Z., TAINSKY M.A.;

RA FRIEND S.H.;

RT "Germ line p53 mutations in a familial syndrome of breast cancer, sarcomas, and other neoplasms"; *Science* 250:1233-1238(1990).

RL [22]

RP VARIANT LFS ASP-245.

RX MEDLINE; 91080929.

RA SRIVASAVA S., ZOU Z., PIROLLO K., BLATTNER W., CHANG E.H.;

RT "Germ-line transmission of a mutated p53 gene in a cancer-prone family with Li-Fraumeni syndrome"; *Nature* 348:747-749(1990).

RL [23]

RP VARIANT LFS LEU-272.

RX MEDLINE; 92147883.

RA FELIX C., NAU M.M., TAKAHASHI T., MITSUDOMI T., CHIBA I., POPLACK D.G., REAMAN G.H., COLE D.E., LETTERIO J.J., WHANG-PENG J., KNUTSEN T., MINNA J.D.;

RA MALKIN D., JOLLY K.W., BARBIER N., LOOK A.T., FRIEND S.H., GEBHARDT M.C., ANDERSEN T.I., BORESEN A.-L., LIE F.-P., GARBER J., STRONG L.C.;

RT "Germline mutations of the p53 tumor-suppressor gene in children and young adults with second malignant neoplasms"; *New Engl. J. Med.* 326:1309-1315(1992).

RL [24]

RP VARIANT LFS HIS-273 AND VAL-325.

RX MEDLINE; 92288023.

RA MALKIN D., JOLLY K.W., BARBIER N., LOOK A.T., FRIEND S.H., GEBHARDT M.C., ANDERSEN T.I., BORESEN A.-L., LIE F.-P., GARBER J., STRONG L.C.;

RT "Germline mutations of the p53 tumor-suppressor gene in children and young adults with second malignant neoplasms"; *New Engl. J. Med.* 326:1309-1315(1992).

RL [25]

RP VARIANT BREAST TUMORS GLN-132; SER-249; LYS-280 AND LYS-285.

RX MEDLINE; 90295384.

RA BARTEK J., IGGO R., GANNON J., LANE D.P.;

RT "Genetic and immunochemical analysis of mutant p53 in human breast cancer cell lines"; *Oncogene* 5:893-899(1990).

Search completed: April 25, 2000, 20:28:07
Search time: 1054 sec